



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Attorney Docket No.: 37945-0026

In re Colin Stanley FITCHETT

Serial No.: 09/308,403

Filed: October 21, 1999

Art Unit: 1651

For: PRODUCTION OF VEGETABLE GELS

BRIEF ON APPEAL

Appeal from the Primary Examiner

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Appellants appeal the final rejection of November 12, 2002 ("Office Action") and the Advisory Action of March 4, 2003 ("Advisory Action") in the captioned application to the Board of Patent Appeals and Interferences. Appellants petition for a five month extension of time. Appellants provide a check for the fees for the extension of time and the brief fee. Please debit any underpayments, or credit any overpayments, to firm deposit account no. 08-1641. This brief is being filed in triplicate.

I. REAL PARTY IN INTEREST

Cambridge Biopolymers Limited as assignee, owns the entire right, title and interest in the captioned application and, therefore, are the real parties in interest.

II. RELATED APPEALS AND INTERFERENCES

Appellants are aware of no other appeals or interferences pertaining to the instant invention.

III. STATUS OF THE CLAIMS

Claims 1-3, 7-26, and 28-59 are on appeal. These claims stand finally rejected, as indicated in the final rejection. A copy of the claims on appeal is attached as Appendix A.

Claims 1-29 were originally filed. Claims 4-6 and 27 were canceled and claims 30-57 were added in an Amendment and Response filed January 18, 2002. Claims 58 and 59 were added in an Amendment under 37 CFR §1.111 on September 13, 2002.

IV. STATUS OF THE AMENDMENTS

No new amendments have been filed after the final rejection of November 12, 2002.

V. SUMMARY OF THE INVENTION

The instant invention claims water-soluble, hemicellulose-based compositions which promote oxidative gelling. In particular, these compositions comprise:

- 1) non-cellulosic, non-starch hemicellulose material;
- 2) an oxidase;
- 3) and an oxidase substrate; wherein the hemocellulosic material comprises at least one polysaccharide, and at least one polysaccharide is arabinoxylan ferulate.

The claimed invention covers other preparations comprising the instant composition, as well as methods for preparing the composition. The claimed invention is advantageous because it addresses a need for alternative methods of oxidative gelation. Current oxidative gelation methods use hydrogen peroxide, which is inconvenient as a reagent in large-scale industrial processes and potentially dangerous (specification, page 5, para. 5). Other oxidative gelation systems may require the use of expensive materials. To solve this problem, the claimed invention provides, in accordance with one aspect of the invention, a negative feedback loop to ensure that excessive endogenous hydrogen peroxide production is controlled by progressively denaturing the enzymes that produce hydrogen peroxide as the temperatures rises (specification, page 8, last para.).

VI. ISSUES ON APPEAL

The issue in this appeal is:

Whether claims 1-3, 7-26, and 28-59 are obvious under 35 U.S.C. § 103(a) over U.S. Patent No. 5,530,112 to Greenshields *et al.* ("Greenshields") in view of U.S. Patent No. 5,200,338 to Crawford *et al.* ("Crawford") under 35 U.S.C. § 103(a).

The Examiner has argued that because the Appellant's claims are allegedly directed to the generation of peroxide by a combination of elements stated to be well-recognized in the art as being suitable for the production of peroxide, Appellant's claims must be considered obvious, and one of ordinary skill in the art would have reasonably expected hydrogen peroxide generated *in situ* to have allowed Greenshield's peroxidase to function in its normal disclosed manner. The Examiner has asserted that the claims obvious because the Appellant has allegedly applied a known method of peroxide production to a process allegedly known to require peroxide.

VII. GROUPING OF THE CLAIMS

The rejected claims do not stand or fall together for the reasons set forth in the arguments section below. M.P.E.P. § 1206. 37 CFR § 1.192(c)(7). *See Application of Maloney*, 56 C.C.P.A. 1218, 411 F.2d 1321, 162 U.S.P.Q. 98, Cust. & Pat.App. (1969) (*citing In re Klug*, 333 F.2d 905, 51 CCPA 1529; *In re Larsen*, 292 F.2d 531, 49 CCPA 711. ("Claims to compositions of matter may be separately patentable whether or not process claims drawn to the method of making those compositions are patentable.")).

The pending claims may be grouped as follows:

A. Claims 1-3, 7-16, 21-26, 28-39, 45-57, and 59 relate to a water soluble hemicellulose-based composition, comprised of a gel or viscous medium, a method for making said composition, and various embodiments of said composition.

B. Claims 17-20, 40-44, and 58 relate to a process for effecting oxidative gelation of a water soluble hemicellulose-based composition.

Group A is separately patentable and distinct from the oxidative gelation process of Group B because Group A claims a specific, hemicellulose-based composition in the form of an anhydrous powder, derived from a specific source. The claims of group A are distinguishable

over the prior art of Greenshields and Crawford because the claimed composition contains a dispersant selected from the group consisting of glucose and maltodextrin, as claimed in Claim 36, on appeal. Group A is also further distinct from the prior art because the claimed composition is capable of self-gelling upon addition of water, and because the gelled hemicellulose composition may be used in various types of therapy, prophylaxis, or diagnosis of skin lesions.

Group B is separately patentable and distinct from Group A because it is directed to an oxidative gelation process of a more generically claimed hemicellulose-based composition than claimed in Group A or Greenshields. The oxidative process of Group B does not claim a glucose substrate, the percentage arabinoxylan or glucoronoarabinoxylan of the hemicellulose-based composition, a gel or viscous medium for the hemicellulose-based composition, or the source of the hemicellulose-based composition used in the oxidative gelation process, unlike Group A and/or Greenshields. The claimed oxidative process of Group B also claims an *in situ* method of hydrogen peroxide generation, which is not claimed in the oxidative process of Greenshields.

For these reasons, Group A and B are separately patentable and distinct from each other and from the prior art. Thus, the claims do not stand or fall together.

VIII. ARGUMENTS

A. Obviousness under 35 USC § 103(a)

M.P.E.P. § 2142 sets forth the requirements that must be met in order to establish a *prima facie* case of obviousness under § 103. To establish a *prima facie* case of obviousness, three basic criteria must be met.

- 1) First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings.
- 2) Second, there must be a reasonable expectation of success upon combining such references.
- 3) Finally, the prior art references when combined must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on the Appellant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991)." See M.P.E.P. § 2142.

Appellants respectfully submit that the Examiner's rejections fail to establish a *prima facie* case of obviousness based on any combination of Greenshields and Crawford under § 103.

B. The Examiner Has Shown No Suggestion or Motivation to Modify or Combine Greenshields with Crawford Nor Addressed the Fact that Greenshields Teaches a Polymerization Process while Crawford Teaches a Depolymerization Process

The Examiner has not shown any suggestion or motivation to modify or combine the hemicellulose gel polymerization process of the Greenshields patent with the lignocellulose depolymerization process of the Crawford patent. Greenshields teaches polymerization of hemicellulose gels, while Crawford teaches a process for depolymerization of lignocellulose, resulting in degradative products from cleavage of para-hydroxy ether linkages and methoxy groups in lignin. Polymerization and depolymerization are the *antithesis* of each other. Polymerization is the combination of many small molecules to form large molecules, while depolymerization is the dismantling of a polymer into individual monomers.

The Examiner's assertion that the Greenshields and Crawford patents can be combined is based on the fact that the Greenshields and Crawford processes both use peroxidase and a substrate to generate hydrogen peroxide. *See* Office Action, page 4. The Examiner has stated that one of ordinary skill in the art would have been motivated to substitute Crawford's *in situ* peroxide generation methods for the direct addition of peroxide disclosed in Greenshields. However, an inquiry that focuses on substitutions and differences, instead of the invention as a whole, is legally improper. *See Hybritech v. Monoclonal Antibodies, Inc.*, 802 F.2d 1367, 1383, 231 U.S.P.Q. 81, 93 (Fed. Cir. 1986).

It would not be obvious to one of ordinary skill in the art to substitute the Crawford process of generating hydrogen peroxide for the Greenshields process of generating hydrogen peroxide because while both Greenshields and Crawford teach the use of peroxidases for the production of hydrogen peroxide, Greenshields discloses a process for the extraction of non-lignin-containing hemicellulose in the presence of exogenous hydrogen peroxide. In contrast, Crawford discloses a process for degradation of the lignin portion of lignocellulose using the lignin peroxidase enzyme in the presence of hydrogen peroxide, produced by the addition of glucose and glucose oxidase. Polymerization reactions as a result of *in situ*-generated peroxide are not disclosed or suggested in the Crawford reference. Thus, one of ordinary skill in the art would not be motivated to combine the Greenshields and Crawford references to achieve polymerization by generating peroxide *in situ*.

Not only do the Greenshields and Crawford references fail to teach or suggest the present invention, they provide no reason, suggestion, or motivation for attempting to polymerize a hemicellulose composition produced by oxidative gelation, which has the recited properties of the claimed invention. *See In re Oetiker*, 977 F.2d 1443, 24 U.S.P.Q.2d 1443, 1446 (Fed. Cir.

1992) (to rely on a reference as a basis for rejection of patent Appellant's invention, the reference must be reasonably pertinent to a particular problem with which inventor was concerned, and an invention cannot be held to have been obvious unless something specific in a prior art reference would lead an inventor to combine the teachings therein with another piece of prior art). The claimed hemicellulose composition does not contain cellulose or lignin. Lignocellulose, as taught by Crawford, is different from hemicellulose because it is a complex of three primary polymers: lignin, cellulose, and hemicellulose. Greenshields teaches a hemicellulosic composition free of glucans and pectins, while the claimed invention teaches an oxidative gelation method of non-cellulosic hemicellulose that may be comprised of pectins, in the presence of hydrogen peroxide generated *in situ*. (specification, page 8, last para.). Additionally, neither Greenshields nor Crawford disclose or claim a negative feedback loop to ensure that excessive endogenous hydrogen peroxide production is controlled, as in the claimed invention.

By attempting to combine Greenshields and Crawford, the Examiner has chosen and combined selected prior art references based on Appellant's own disclosure, which is improper. "The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Appellant's disclosure." *See* M.P.E.P. § 2142. When making an obviousness rejection, the Examiner is not permitted to undertake a review of the prior art based on selective hindsight. *In re Dow Chemical Co.*, 5 U.S.P.Q.2d 1529, 1532 (Fed. Cir. 1988) (holding that a specification can not be used as a guide to reconstruct or reinterpret the state of the prior art).

C. The Examiner Has Not Shown Why it is Desirable to Combine Greenshields with Crawford

The Examiner has not shown why it is *desirable* to combine the Greenshields hemicellulose polymerization process with the Crawford depolymerization process. When the motivation to combine the teachings of the references is not immediately apparent, it is the duty of the Examiner to explain why the combination of the teachings is proper. *Ex parte Skinner*, 2 U.S.P.Q.2d 1788 (Bd. Pat. App. & Inter. 1986). "The mere fact that references can be combined or modified does not render the resultant combination obvious, unless the prior art also suggests the *desirability* of the combination." M.P.E.P. § 2143.01 (citing *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990) (emphasis applied)). Contrary to the Examiner's assertion in the Advisory Action, Appellants' reading of the *Mills* case is not excessively narrow. Appellants cite *In re Mills* for the proposition that just because the Examiner asserts that Greenshields and Crawford can be combined does not mean that one of ordinary skill in the art would find that it would be desirable to combine said references.

According to the Greenshields Declaration, it is unlikely that one of ordinary skill in the art would find it desirable to combine the Greenshields polymerization process with the Crawford depolymerization process. For example, in paragraph eight of Roderick Greenshields' Declaration Under 37 C.F.R. § 1.132, Greenshields pointed out the undesirability of this combination. Greenshields did not consider achieving polymerization using *in situ* generation of peroxide, "partly as a result of the contrary teaching of Crawford which described an oxidative process that causes depolymerization and is brought about by the addition of peroxide." Crawford does not teach polymerization reactions as a result of *in situ* generation of peroxide. Thus, it would not be desirable to combine Greenshields with Crawford.

D. The Examiner's Rejection Does Not Properly Consider Objective Evidence

The Declaration Under 37 C.F.R. § 1.132 of Dr. Roderick Greenshields, a co-inventor of the Greenshields patent, submitted with Appellants' response dated September 13, 2002, is objective evidence. The objective evidence submitted in the Greenshields Declaration clearly shows that one of ordinary skill in the art would not be motivated to combine the Greenshields and Crawford references. *In re Oelrich*, 579 F.2d 86, 198 U.S.P.Q. 210 (CCPA 1978) (factually-based expert opinions on the level of ordinary skill in the art are sufficient to rebut the *prima facie* case of obviousness). The Examiner is urged to consider the factual statements within the Declaration as objective evidence, which carry more weight than arguments alone. *See* M.P.E.P. § 716(c). Nevertheless, the Examiner has stated in the Advisory Action that the Declaration lacks scientific support. The Declaration of Dr. Greenshields explains why the Greenshields and Crawford references cannot be combined. Paragraph six of the Greenshields Declaration states that the Greenshields reference describes an oxidative cross-linking process of the phenolic compound ferulic acid, which results in a rigid insoluble gel "derived from the polymerization of the polysaccharide."

Paragraph eight of the Greenshields Declaration further explains why polymerization in the Greenshields reference was unexpected because of the contrary teachings in Crawford. Paragraph nine of the Greenshields Declaration explains that Crawford describes an oxidative process that de-polymerizes and solubilizes phenolic compounds associated with polysaccharides extracted from plant cell walls. Paragraph ten of the Greenshields Declaration clarifies that "[d]epolymerisation in Crawford et al. occurs through cleavage of ether bonds within molecules. Crawford does not teach polymerization reactions as a result of *in situ* generation of peroxide

[emphasis applied]." Based on this objective evidence, one of ordinary skill in the art would not combine the contradictory teachings of these two references.

E. There is No Reasonable Expectation of Success Upon Combining Greenshields and Crawford

One of ordinary skill in the art would not have a reasonable expectation of success in combining the Greenshields and Crawford references because, as stated above, each of the Greenshields and Crawford references is drawn to different processes: polymerization vs. depolymerization. *See* M.P.E.P. § 2143.01. "The prior art can be modified or combined to reject claims as *prima facie* obvious as long as there is a reasonable expectation of success." *In re Merck & Co., Inc.*, 800 F.2d 1091, 231 U.S.P.Q. 375 (Fed. Cir. 1986). Evidence showing there is no reasonable expectation of success may support a conclusion of nonobviousness. *In re Rinehart*, 531 F.2d 1048, 189 U.S.P.Q. 143 (CCPA 1976), while a greater than expected result provides evidence of obviousness of the claims at issue. *In re Corkill*, 711 F.2d 1496, 226 U.S.P.Q. 1005 (Fed. Cir. 1985). Both the Greenshields and Crawford references are silent as to the unexpected results taught in the claimed invention. Thus, no reasonable expectation of success can be asserted by the combination of the Greenshields and Crawford references.

In contrast, the claimed invention possesses properties which show unexpected results. Presence of a property not possessed by the prior art is evidence of nonobviousness. *In re Papesch*, 315 F.2d 381, 137 U.S.P.Q. 43 (CCPA 1963). In paragraph twelve of his Declaration, Dr. Greenshields stated that the claimed invention produced unexpected results because he would have expected that *in situ* generation of hydrogen peroxide would have depolymerized hemicellulose. The Examiner has stated in the Advisory Action that Appellant's claims are not commensurate in scope with any alleged showing of unexpected results because while the Appellant urges an unexpected result with respect to the amounts of glucose and glucose

oxidase, the Appellant's claims do not contain any limitations with respect to glucose or glucose oxidase amounts. However, in paragraph eleven of his Declaration, Dr. Greenshields states that the claimed invention involves twenty (20) times more glucose and five-thousand (5,000) times more glucose oxidase than the Crawford reaction. Accordingly, the polymerization and gelling characteristics of the present invention are completely unexpected in view of the teachings in Crawford. Even if Appellant does not claim the amount of glucose oxidase in the instant invention, Appellant disclose that "[t]he level of purity and/or specificity [of the enzyme supplement] is not crucial to the practi[c]e of the invention, so long as oxidase and/or peroxidase levels are elevated to levels sufficient to promote oxidative gelation under appropriate conditions." (specification, page 7, para. 4). Appellant discloses representative amounts of glucose, peroxidase, and glucose oxidase that may be used in Examples 1 and 4-6 in the specification.

F. Greenshields and Crawford Do Not Teach, in Combination, the Claimed Invention

The combination of Greenshields and Crawford do not teach, in combination, all of the claim limitations of the claimed invention. "To establish *prima facie* obviousness of a claimed invention, all of the claim limitations must be taught or suggested by the prior art." *See also* M.P.E.P. § 2143.03. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). "All words in a claim must be considered in judging the patentability of that claim against the prior art." *In re Wilson*, 424 F.2d 1382, 1385, 165 U.S.P.Q. 494, 496 (CCPA 1970). Specifically, it does not appear that either Greenshields or Crawford disclose or claim "A dispersant such as glucose or maltodextrin," as in claim 36 on appeal. Accordingly, any combination of Greenshields and Crawford fails to teach or suggest all the claims of the instant invention.

G. The Examiner's Combination of Greenshields and Crawford May be Overcome

When an Examiner alleges a *prima facie* case of obviousness, such an allegation may be overcome by showing that (i) there are elements not contained in the references or within the general skill in the art, (ii) the combination is improper (for example, there is a teaching away from or no reasonable expectation of success) and/or (iii) objective indicia of patentability exist (for example, unexpected results). See *U.S. v. Adams*, 383 U.S. 39, 51-52 (1966); *Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 U.S.P.Q.2d 1923, 1927 (Fed. Cir. 1990); *Bausch & Lomb, Inc. v. Barnes-Hind/Hydrocurve*, 230 U.S.P.Q. 416, 419-20 (Fed. Cir. 1986).

As stated previously, even assuming that the teachings of Greenshields and Crawford could successfully be combined, the Greenshields/Crawford combination still fails to teach or suggest the claimed invention. The claimed invention teaches a polymerization process involving a composition which promotes oxidative gelation, comprising, *inter alia*, an oxidase substrate. The Office Action admits that Greenshields fails to teach *in situ* production of a peroxide by addition of an oxidase substrate. Crawford is then added for the proposition that inclusion of an oxidase substrate generates peroxide. However, Crawford teaches depolymerization of lignocellulose, the antithesis of Appellant's invention, *i.e.*, oxidative gelation of hemicellulose.

The Greenshields and Crawford references teach away from the invention, and the Examiner's rejections fail to consider the Greenshields and Crawford references as a whole. "A prior art reference must be considered in its entirety, *i.e.*, as a whole, including portions that would lead away from the claimed invention." *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 U.S.P.Q. 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984) (emphasis

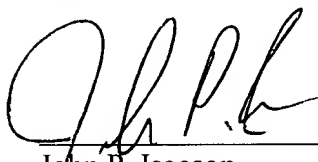
applied). Crawford fails to teach or suggest modifying the claimed invention to include the addition of an oxidase substrate to promote gelation and teaches away from the instant invention. *See In re Gurley*, 27 F.3d 551, 553, 31 U.S.P.Q.2d 1130, 1131 (Fed. Cir. 1994) (stating, “in general, a reference will teach away if it suggests that the line of development flowing from the reference’s disclosure is unlikely to be productive of the result sought by the applicant.”)

The Examiner alleges that the fact that Crawford teaches depolymerization as opposed to Greenshields’ polymerization does not teach away from the claimed invention. However, “[a] reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant”. *Id.* A teaching away by the cited art is sufficient to rebut an alleged case of obviousness. *See Ecolochem, Inc. v. Southern California Edison Co.*, 227 F.3d 1361, 1372-75 (Fed. Cir. 2000) (reasoning that prior art references cannot contain a motivation to combine to when one of the references teaches away from the combination). Here, Crawford, by its very terms, informs the skilled person to avoid the likes of Greenshields. Accordingly, the strong teaching away by the Crawford reference means that there is no motivation or suggestion to combine the references, and therefore there can be no proper *prima facie* case of obviousness. Thus, it would not be obvious to one of ordinary skill in the art to combine Greenshields and Crawford, and the claimed invention is nonobvious.

VIII. CONCLUSION

In view of the foregoing arguments, reconsideration of the application and allowance of all presently rejected claims on appeal by the Board of Patent Appeals and Interferences is respectfully requested.

Respectfully submitted,



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October 24, 2003

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APPENDIX A - CLAIMS ON APPEAL

1. A water soluble hemicellulose-based composition comprising:
 - non-cellulosic, non-starch hemicellulose material;
 - an oxidase; and
 - an oxidase substrate;wherein the hemocellulosic material comprises at least one polysaccharide and at least one polysaccharide is arabinoxylan ferulate.
2. The composition of claim 1 further comprising a peroxidase.
3. The composition of claim 1, wherein the hemicellulose material is derived from cereal, husk or bran, straw, or from legumes.
7. The composition of claim 1, wherein said composition is in the form of a powder.
8. The composition of claim 7, which further comprises peroxidase, the material being self-gelling on the addition of water.
9. The composition of claim 1, wherein the composition is in the form of an aqueous solution.
10. The composition of claim 9, which is substantially free of molecular oxygen.
11. The composition of claim 10, which further comprises peroxidase and which is self-gelling on exposure to molecular oxygen.
12. A gel or viscous medium comprising the composition of claim 1, which has been oxidatively gelled.
13. The gel of claim 12, wherein the composition comprises cross linked arabinoxylan ferulate.
14. The gel of viscous medium of claim 12 in dehydrated form.
15. The dehydrated gel or viscous medium of claim 14 in rehydrated form.
16. A process for preparing a gel or viscous medium comprising the step of oxidatively gelling the composition of claim 1.

17. A process for effecting oxidative gelation of a water soluble hemicellulose-based composition comprising non-cellulosic, non-starch hemicellulose material, wherein the hemicellulosic material comprises at least one polysaccharide and at least one polysaccharide is arabinoxylan ferulate, comprising promoting the generation of hydrogen peroxide *in situ* by redox enzymes, said generation comprising the steps of:

- (a) providing oxygen to the composition and/or
- (b) providing water to the composition; and/or
- (c) providing oxidase substrate to the composition; and/or
- (d) activating one or more of the redox enzymes.

18. The process of claim 16, wherein the redox enzymes comprise an oxidase and a peroxidase.

19. The process of claim 17, wherein the process comprises the step of supplementing the hemicellulose material with an oxidase.

20. The process of claim 18, wherein the generation of hydrogen peroxide is promoted by:

- (a) providing oxygen to the composition and/or
- (b) providing water to the composition; and/or
- (c) providing oxidase substrate to the composition; and/or
- (d) activating one or more of the redox enzymes.

21. A gel or viscous medium produced by the process of claim 16.

22. A process for producing the hemicellulosic composition of claim 1 comprising the step of supplementing a hemicellulose with an oxidase.

23. A composition produced by the process of claim 22.

24. A pharmaceutical or cosmetic preparation or medical device comprising the material, gel, viscous medium, dehydrated gel/viscous medium of claim 1, the preparation or device being selected from the group consisting of a wound plug, wound dressing, controlled release device, an encapsulated medicament or drug, a lotion, cream, suppository, pessary, spray, artificial skin, protective membrane, a neutraceutical, prosthetic, orthopaedic, ocular insert, injectant, lubricant or cell implant matrix, optionally further comprising an antibiotic, analgesic and antiinflammatory agent.

25. The material, gel or viscous medium of claim 12 for use in therapy, prophylaxis or diagnosis of skin lesions.

26. A wound dressing comprising the composition of claim 11.
28. A foodstuff, dietary fiber source, food ingredient, additive, lubricant, supplement or dressing comprising the composition of claim 1, being selected from the group consisting of a petfood, a flavour delivery agent, a canning gel, fat replacer, a coating, a glaze, a bait and a gelatin replacer.
29. A masking agent comprising the gel of claims 12.
30. The composition of claim 1, wherein the oxidase is glucose oxidase.
31. The composition of claim 2, wherein the peroxidase is horse radish peroxidase.
32. The composition of claim 2, wherein the oxidase substrate is glucose.
33. The composition of claim 3, wherein the hemicellulose material is selected from the group consisting of maize, wheat, barley, rice, oats and malt.
34. The composition of claim 1, wherein the hemicellulose material is derived from testaceous plant material containing at least about 20% of at least one of arabinoxylan or glucuronarabinoxylan.
35. The composition of claim 7, wherein the powder is substantially anhydrous and further comprises a dispersant.
36. The composition of claim 35, wherein the dispersant is selected from the group consisting of glucose and maltodextrin.
37. The composition of claim 7, wherein the oxidase substrate is glucose.
38. The composition of claim 11, wherein the oxidase substrate is glucose.
39. The process of claim 16, wherein the oxidative gelling comprises adding water to the composition or exposing the composition to molecular oxygen.
40. The process of claim 18, wherein the process comprises the steps of supplementing the hemicellulosic material with an oxidase and optionally an oxidase substrate and/or a peroxidase.
41. The composition of claim 18, wherein the oxidase is a glucose oxidase.
42. The composition of claim 18, wherein the peroxidase is horse radish peroxidase.
43. The process of claim 20, wherein the oxygen and oxidase are each provided by generation or controlled release *in situ*.
44. The process of claim 20, wherein the one or more redox enzymes are activated chemically or physically.

45. The process of claim 22, wherein the oxidase is a glucose oxidase.
46. The process of claim 22, wherein the peroxidase is horse radish peroxidase.
47. The process of claim 25, wherein the skin lesions is selected from the group consisting of burns, abrasions and ulcers.
48. The wound dressing of claim 26 in the form of a spray.
49. A gel or viscous medium produced by the process of claim 16.
50. The material, gel or viscous medium of claim 21 for use in therapy, prophylaxis or diagnosis of skin lesions.
51. A foodstuff, dietary fiber source, food ingredient, additive, lubricant, supplement, or dressing comprising the material, gel or viscous medium of claim 12, being selected from the group consisting of a petfood, a flavour delivery agent, a canning gel, fat replacer, a coating, a glaze, a bait and a gelatin replacer.
52. A foodstuff, dietary fiber source, food ingredient, additive, lubricant, supplement or dressing comprising the material, gel or viscous medium of claim 21, being selected from the group consisting of a petfood, a flavour delivery agent, a canning gel, fat replacer, a coating, a glaze, a bait and a gelatin replacer.
53. A foodstuff, dietary fiber source, food ingredient, additive, lubricant, supplement or dressing comprising the composition of claim 23, being selected from the group consisting of a petfood, a flavour delivery agent, a canning gel, fat replacer, a coating, a glaze, a bait and a gelatin replacer.
54. A masking agent comprising the gel of claim 21.
55. The hemicellulose material of claim 1, wherein the polysaccharide consists essentially of arabinoxylan ferulate.
56. The hemicellulose material of claim 1, wherein the polysaccharide consists of arabinoxylan ferulate.
57. The gel of claim 13, wherein the composition consists essentially of cross linked arabinoxylan ferulate.
58. The process of claim 19, wherein the step of supplementing the hemicellulose material further comprises an oxidase substrate and/or a peroxidase.
59. The process of claim 22, wherein the step of supplementing the hemicellulose material further comprises a peroxidase.